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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/592,915	06/13/2000	Hideki Kikui	040405/321	5751
22428	7590	07/09/2004	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			BRINEY III, WALTER F	
			ART UNIT	PAPER NUMBER
			2644	
DATE MAILED: 07/09/2004				

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/592,915	KIKUI, HIDEKI
	Examiner	Art Unit
	Walter F Briney III	2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 13 June 2000.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-15 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 13 June 2000 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,5.
- 4) Interview Summary (PTO-413) Paper No(s). _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cotreay (US Patent 5,528,682) in view of Glassman (US Patent 4,277,648).

Claim 1 is limited to a **subscriber circuit**. Cotreay discloses a ring trip detector (figure 4, element 36) and a SLIC (32) that access a filter (46) in disjoint time periods (abstract). Cotreay discloses a SLIC (i.e. a **feeding circuit for feeding current of a call to a terminal through a subscriber line**) connected to a subscriber's telephone and loop by way of two relays (i.e. a **switching circuit group**) (50, 52). The relays clearly allow for **connecting the feeding circuit to the subscriber line and releasing the feeding circuit from the subscriber line**, thus inherently **controlling feeding to the terminal**. Cotreay discloses that the SLIC performs all the normal operations of a SLIC (column 2, lines 51-56). SLIC operations can be represented by the mnemonic BORSCHT (Battery, Overvoltage, Ringing, Supervision, Coding, Hybrid, Testing). The Supervision is known to relate to detecting when a terminal device is placed in an off-hook state (i.e. **said feeding circuit monitoring a state of a loop of the subscriber line**). Cotreay discloses that the output of the SLIC (32) is coupled to filter (46) by way of a resistor (RB). Even though Cotreay discloses using the filter in the battery feed

operation of the SLIC, it is not clear where the signal applied to the filter originates from. Therefore, Cotreay anticipates all limitations of the claim with the exception of **converting a two-wire signal sent from the terminal into a signal predetermined coefficient-fold, and supplying the same**. Glassman teaches that on/off-hook state determination can be made by a SLIC with the circuitry shown in figure 2. The circuitry involves an optical isolator and a low pass filter, which can be implemented with the filter disclosed by Cotreay (figure 4, element 46). The isolator acts to mirror the signal on the telephone line to the SLIC circuitry (i.e. **converting a two-wire signal sent from the terminal into a signal predetermined coefficient-fold, and supplying the same**). It would have been obvious to one of ordinary skill in the art at the time of the invention to perform on/off-hook state determination as taught by Glassman because Cotreay discloses a SLIC that must perform a Supervisory function, and because the on/off-hook detection of Glassman includes a low pass filter, which will prevent false detections of hook status. Cotreay discloses a ring trip detector (i.e. **a level converter**) (figure 4, element 36), which functions to enumerate the level of current flowing in a subscriber loop. The detector is connected to the phone line through a relay (i.e. **connected to the subscriber line through said switching circuit group**) (54). The input of ring trip circuit is diagrammed as two wires (i.e. **for converting a two-wire signal sent from the terminal**), and the output is some single-ended representation of the input (i.e. **into a signal any coefficient-fold and supplying the same, separately from said feeding circuit**). Cotreay discloses a comparator (i.e. **a signal monitor means for monitoring a signal**) (38), whose input is coupled through the filter (46) to

the output of the ring trip detector (i.e. **using the output signal of said level converter**). The comparator only receives an input signal when the subscriber is to be rung (i.e. **according to upper control information...**). This can be seen by the connection of relays 54, 56, 58, 62, and 64 (i.e. **and the output of monitoring the loop of said feeding circuit**). The comparator is shown with an output (i.e. **and supplying signal monitor information**). Therefore, Cotreay in view of Glassman makes obvious all limitations of the claim.

Claim 2 is limited to a **subscriber circuit as claimed in claim 1**, as covered by Cotreay in view of Glassman. Cotreay discloses resistors (figure 4, elements RA, RB) that receive the outputs from the ring trip detector and the SLIC (i.e. **wherein said signal monitor means includes a signal output circuit for receiving the output signal of said feeding circuit and the output signal of said level converter**). The filters are used by the outputs during disjoint time periods (i.e. **and supplying one of the signals**). Each filter shares a capacitor (i.e. **a wave filter for filtering the output signal of said signal output circuit**) (46). The ring trip detector makes use of a comparator (i.e. **a signal monitor for monitoring a signal based on the output signal of said wave filter and supplying signal monitor information**) (38). Cotreay discloses connecting either the ring trip detector or the SLIC to the line, inherently requiring **control circuitry** (column 3, lines 1-22). Because the inputs to the comparator can only be generated by the active device (i.e. the ring trip detector or the SLIC), when the **control circuit** opens and closes the relays (50, 52, 54, 56) connecting the SLIC and the ring trip detector the control circuit is controlling the **output of said**

feeding circuit, output of said level converter, and operation of said signal output circuit, depending on the operation, according to the upper control information and the loop monitoring output of said feeding circuit. Therefore, Cotreay in view of Glassman makes obvious all limitations of the claim.

Claim 3 is limited to a **subscriber circuit as claimed in claim 1**, as covered by Cotreay in view of Glassman. Cotreay discloses a shared capacitor (i.e. a **wave filter for filtering the output signal of said feeding circuit and the output signal of said level converter**) (figure 4, element 46). Cotreay discloses switches to ground (i.e. a **signal output circuit**) (58, 60) that shunts one of the outputs of the capacitor to ground (i.e. **for receiving the output signal of said feeding circuit and the output signal of said level converter filtered through said wave filter, and supplying one of the signals**). The ring trip detector makes use of a comparator (i.e. a **signal monitor for monitoring a signal based on the output signal of said wave filter and supplying signal monitor information**) (38). Cotreay discloses connecting either the ring trip detector or the SLIC to the line, inherently requiring **control circuitry** (column 3, lines 1-22). Because the inputs to the comparator can only be generated by the active device (i.e. the ring trip detector or the SLIC), when the **control circuit** opens and closes the relays (50, 52, 54, 56) connecting the SLIC and the ring trip detector the control circuit is controlling the **output of said feeding circuit, output of said level converter, and operation of said signal output circuit, depending on the operation, according to the upper control information and the loop monitoring output of said feeding**

circuit. Therefore, Cotreay in view of Glassman makes obvious all limitations of the claim.

Claim 11 is limited to a **subscriber circuit as claimed in claim 1**, as covered by Cotreay in view of Glassman. Cotreay discloses a ring trip detection circuit (figure 4, element 36), the detector converts the double-ended measurement across the sensing resistor (40) into a single-ended output, scaled by some factor (i.e. **wherein said level converter is formed by a converter**). Therefore, Cotreay in view of Glassman makes obvious all limitations of the claim.

Claim 12 is essentially the same as claim 2, as covered by Cotreay in view of Glassman, but also includes the limitations of claim 11. Therefore, claim 12 is rejected for the same reasons as claim 11.

Claim 13 is essentially the same as claim 3, as covered by Cotreay in view of Glassman, but also includes the limitations of claim 11. Therefore, claim 8 is rejected for the same reasons as claims 3 and 11.

Claims 4-6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cotreay in view of Glassman in view of Holmes et al. (US Patent 3,941,939) and further in view of Boutilier et al. (US Patent 3,865,992).

Claim 4 is limited to a **subscriber circuit as claimed in claim 1**, as covered by Cotreay in view of Glassman. Cotreay discloses a ring trip detector (figure 4, element 36), which converts a sensed current into a single-ended output scaled by some factor. Glassman teaches an optical isolator (figure 2, elements 24) that provides a single-ended output for application to a low pass filter. Therefore, Cotreay in view of

Glassman makes obvious all limitations of the claim with the exception **wherein the coefficient used for said feeding circuit converting the two-wire signal into a signal coefficient-fold is identical to the coefficient used for said level converter converting the two-wire signal into a signal coefficient-fold.** Holmes teaches a ring trip circuit that uses optical isolators to couple the sensed current on the line (figure 1, current through QD) to the detection circuitry used to determine hook status (figure 1, amplifier). Bouty teaches that optical isolators are good isolation devices because of their reduced area and increased longevity (column 1, lines 37-65). Optical isolators operate by sensing a current and producing an optical link to a photosensitive transistor. The transistor becomes conductive, thus allowing a supply that is separate from the sensed current to provide a mirrored current. Thus, by using two optical isolators, one for the on/off-hook detector and one for the ring trip detector, that convert the sensed currents into signals within the SLIC's voltage supply, the converting circuits are using identical coefficients. It would have been obvious to one of ordinary skill in the art at the time of the invention to use an optical isolator as taught by Holmes for the purpose of implementing a ring trip detecting circuit with a long life and small area, which is taught by Bouty.

Claim 5 is essentially the same as claim 2, as covered by Cotreay in view of Glassman, but also includes the limitations of claim 4. Therefore, claim 5 is rejected for the same reasons as claims 2 and 4.

Claim 6 is essentially the same as claim 3, as covered by Cotreay in view of Glassman, but also includes the limitations of claim 4. Therefore, claim 5 is rejected for the same reasons as claims 3 and 4.

Claim 14 is a combination of claims 4 and 11. Therefore, Claim 14 is rejected for the same reasons as claims 4 and 11.

Claims 7-9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cotreay in view of Glassman and further in view of Hetherington et al. (US Patent 4,007,335).

Claim 7 is limited to a **subscriber circuit as claimed in claim 1**, as covered by Cotreay in view of Glassman. Cotreay discloses a SLIC that is known to perform BORSCHT functions, the first being battery feed. However, Cotreay does not disclose the way in which battery feed is achieved. Therefore, Cotreay in view of Glassman makes obvious all limitations of the claim with the exception **wherein said feeding circuit is formed by a transistor**. Hetherington teaches a solid state battery feed circuit that uses at least one transistor (figure 1, element 11). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the battery feed circuitry as taught by Hetherington to provide the battery feed function necessitated by Cotreay and because the transistor switches of Hetherington provide a smaller circuit, which reduces costs (Hetherington, column 1, lines 21-45).

Claim 8 is essentially the same as claim 2, as covered by Cotreay in view of Glassman, but also includes the limitations of claim 7. Therefore, claim 8 is rejected for the same reasons as claims 2 and 7.

Claim 9 is essentially the same as claim 3, as covered by Cotreay in view of Glassman, but also includes the limitations of claim 7. Therefore, claim 8 is rejected for the same reasons as claims 3 and 7.

Claim 15 is a combination of claims 7 and 11. Therefore, Claim 15 is rejected for the same reasons as claims 7 and 11.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cotreay in view of Glassman in view of Holmes in view of Boutu and further in view of Hetherington.

Claim 10 is a combination of claims 4 and 7. Therefore, Claim 10 is rejected for the same reasons as claims 4 and 7.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

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Art Unit: 2644

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6/25/04

MINSUN CHI HARVEY
PRIMARY EXAMINER